

WHAT IS CLAIMED IS:

- 1 1. A computer-implemented system for measuring and improving manufacturing
2 processes and maximizing product research and development speed and efficiency, the system
3 comprising:
 - 4 a memory configured to store instructions;
 - 5 a processor configured to execute instructions for:
 - 6 a predictive model that predicts an output from data input,
 - 7 an optimizer that optimizes input variables based upon desired output
8 variables,
 - 9 a library that stores data and information, and
 - 10 an artificial intelligence that receives requests and information from one of
11 manufacturers or customers, and directs the requests and information to the
12 predictive model if an output prediction is requested by one of the manufacturers or
13 customers, to the optimizer if an optimized input based on a desired output is
14 requested by one of the manufacturers or customers, or to the library if the requests
15 from one of the manufacturers or customers cannot be answered by the predictive
16 model or the optimizer, wherein the predictive model, the optimizer, and the library
17 interconnect with the artificial intelligence; and
 - 18 a high-throughput screening system for analyzing various material combinations and
19 sending data to the library.
- 1 2. A computer-implemented system as recited in claim 1, wherein the predictive model
2 further performs a what if analysis.

1 3. A computer-implemented system as recited in claim 1, wherein the artificial
2 intelligence receives requests and information from one of the manufacturers or customers via the
3 Internet.

1 4. A computer-implemented system as recited in claim 1, wherein the high-throughput
2 screening system sends data via the Internet.

1 5. A computer-implemented system as recited in claim 1, further comprising means for
2 supplying information and data received from one of research laboratories or universities, via the
3 Internet, to the library.

1 6. A computer-implemented system as recited in claim 1, further comprising means for
2 supplying information and data received from the Internet regarding the latest developments in the
3 field of one of the manufacturers or customers to the library.

1 7. A computer-implemented system for measuring and improving manufacturing
2 processes and maximizing product research and development speed and efficiency, the system
3 comprising:

4 a memory configured to store instructions;

5 a processor configured to execute instructions for:

6 a predictive model that predicts an output from input data supplied by one of
7 manufacturers or customers,

8 an optimizer that optimizes input variables based upon desired output
9 variables requested by one of the manufacturers or customers, and
10 a library that stores data and information from one of the manufacturers or
11 customers; and
12 a high-throughput screening system for analyzing various material combinations and
13 sending data to the library.

1 8. A computer-implemented system as recited in claim 7, wherein the predictive model
2 further performs a what if analysis.

1 9. A computer-implemented system as recited in claim 7, wherein the requests and
2 information from one of the manufacturers or customers is supplied via the Internet.

1 10. A computer-implemented system as recited in claim 7, wherein the high-throughput
2 screening system sends data via the Internet.

1 11. A computer-implemented system as recited in claim 7, further comprising means for
2 supplying information and data received from one of research laboratories or universities, via the
3 Internet, to the library.

1 12. A computer-implemented system as recited in claim 7, further comprising means for
2 supplying information and data received from the Internet regarding the latest developments in the
3 field of one of the manufacturers or customers to the library.

1 13. A computer-implemented method for measuring and improving manufacturing
2 processes and maximizing product research and development speed and efficiency, comprising:
3 providing a predictive model that predicts an output from data input;
4 providing an optimizer that optimizes input variables based upon desired output
5 variables;
6 providing a library that stores data and information;
7 providing an artificial intelligence that receives requests and information from one of
8 manufacturers or customers, and directs the requests and information to the predictive model if an
9 output prediction is requested by one of the manufacturers or customers, to the optimizer if an
10 optimized input based on a desired output is requested by one of the manufacturers or customers, or
11 to the library if the requests from one of the manufacturers or customers cannot be answered by the
12 predictive model or the optimizer, wherein the predictive model, the optimizer, and the library
13 interconnect with the artificial intelligence; and
14 providing a high-throughput screening system for analyzing various material
15 combinations and sending data to the library.

1 14. A computer-implemented method as recited in claim 13, wherein the predictive
2 model further performs a what if analysis.

1 15. A computer-implemented method as recited in claim 13, wherein the artificial
2 intelligence receives requests and information from one of the manufacturers or customers via the
3 Internet.

1 16. A computer-implemented method as recited in claim 13, wherein the high-throughput
2 screening system sends data via the Internet.

1 17. A computer-implemented method as recited in claim 13, further comprising supplying
2 information and data received from one of research laboratories or universities, via the Internet, to
3 the library.

1 18. A computer-implemented method as recited in claim 13, further comprising supplying
2 information and data received from the Internet regarding the latest developments in the field of one
3 of the manufacturers or customers to the library.

1 19. A computer-implemented method for measuring and improving manufacturing
2 processes and maximizing product research and development speed and efficiency, comprising:
3 providing a predictive model that predicts an output from input data supplied by one
4 of manufacturers or customers;
5 providing an optimizer that optimizes input variables based upon desired output
6 variables requested by one of the manufacturers or customers;
7 providing a library that stores data and information from one of the manufacturers or
8 customers; and
9 providing a high-throughput screening system for analyzing various material
10 combinations and sending data to the library.

1 20. A computer-implemented method as recited in claim 19, wherein the predictive
2 model further performs a what if analysis.

1 21. A computer-implemented method as recited in claim 19, wherein the requests and
2 information from one of the manufacturers or customers is supplied via the Internet.

1 22. A computer-implemented method as recited in claim 19, wherein the high-throughput
2 screening system sends data via the Internet.

1 23. A computer-implemented method as recited in claim 19, further comprising supplying
2 information and data received from one of research laboratories or universities, via the Internet, to
3 the library.

1 24. A computer-implemented method as recited in claim 19, further comprising supplying
2 information and data received from the Internet regarding the latest developments in the field of one
3 of the manufacturers or customers to the library.

1 25. A method for measuring and improving manufacturing processes and maximizing
2 product research and development speed and efficiency, comprising:
3 predicting an output from data input with a predictive model;
4 optimizing input variables based upon desired output variables with an optimizer;
5 storing data and information in a library;
6 receiving requests and information from one of manufacturers or customers with an

7 artificial intelligence, and directing the requests and information to the predictive model if an output
8 prediction is requested by one of the manufacturers or customers, to the optimizer if an optimized
9 input based on a desired output is requested by one of the manufacturers or customers, or to the
10 library if the requests from one of the manufacturers or customers cannot be answered by the
11 predictive model or the optimizer; and

12 analyzing various material combinations and sending data to the library with a high-
13 throughput screening system.

1 26. A method as recited in claim 25, wherein the predictive model further performs a
2 what if analysis.

1 27. A method as recited in claim 25, wherein the artificial intelligence receives requests
2 and information from one of the manufacturers or customers via the Internet.

1 28. A method as recited in claim 25, wherein the high-throughput screening system sends
2 data via the Internet.

1 29. A method as recited in claim 25, further comprising supplying information and data
2 received from one of research laboratories or universities, via the Internet, to the library.

1 30. A method as recited in claim 25, further comprising supplying information and data
2 received from the Internet regarding the latest developments in the field of one of the manufacturers
3 or customers to the library.

1 31. A method for measuring and improving manufacturing processes and maximizing

2 product research and development speed and efficiency, comprising:

3 predicting an output from input data supplied by one of manufacturers or customers

4 with a predictive model;

5 optimizing input variables based upon desired output variables requested by one of

6 the manufacturers or customers with an optimizer;

7 storing data and information from one of the manufacturers or customers in a library;

8 and

9 analyzing various material combinations and sending data to the library with a high-

10 throughput screening system.

1 32. A method as recited in claim 31, wherein the predictive model further performs a

2 what if analysis.

1 33. A method as recited in claim 31, wherein the requests and information from one of

2 the manufacturers or customers is supplied via the Internet.

1 34. A method as recited in claim 31, wherein the high-throughput screening system sends

2 data via the Internet.

1 35. A method as recited in claim 31, further comprising supplying information and data

2 received from one of research laboratories or universities, via the Internet, to the library.

1 36. A method as recited in claim 31, further comprising supplying information and data
2 received from the Internet regarding the latest developments in the field of one of the manufacturers
3 or customers to the library.

1 37. A computer readable medium that stores instructions executable by at least one
2 processor to perform a method for measuring and improving manufacturing processes and
3 maximizing product research and development speed and efficiency, comprising instructions for:
4 predicting an output from data input with a predictive model;
5 optimizing input variables based upon desired output variables with an optimizer;
6 storing data and information in a library; and
7 receiving requests and information from one of manufacturers or customers with an
8 artificial intelligence, and directing the requests and information to the predictive model if an output
9 prediction is requested by one of the manufacturers or customers, to the optimizer if an optimized
10 input based on a desired output is requested by one of the manufacturers or customers, or to the
11 library if the requests from one of the manufacturers or customers cannot be answered by the
12 predictive model or the optimizer, wherein various material combinations are analyzed and data is
13 sent to the library with a high-throughput screening system.

1 38. A computer readable medium as recited in claim 37, wherein the predictive model
2 further performs a what if analysis.

1 39. A computer readable medium as recited in claim 37, wherein the artificial intelligence

2 receives requests and information from one of the manufacturers or customers via the Internet.

1 40. A computer readable medium as recited in claim 37, wherein the high-throughput

2 screening system sends data via the Internet.

1 41. A computer readable medium as recited in claim 37, wherein information and data

2 received from one of research laboratories or universities is supplied, via the Internet, to the library.

1 42. A computer readable medium as recited in claim 37, wherein information and data

2 received from the Internet regarding the latest developments in the field of one of the manufacturers

3 or customers is supplied to the library.

1 43. A computer readable medium that stores instructions executable by at least one

2 processor to perform a method for measuring and improving manufacturing processes and

3 maximizing product research and development speed and efficiency, comprising instructions for:

4 predicting an output from input data supplied by one of manufacturers or customers

5 with a predictive model;

6 optimizing input variables based upon desired output variables requested by one of

7 the manufacturers or customers with an optimizer; and

8 storing data and information from one of the manufacturers or customers in a library;

9 wherein various material combinations are analyzed and data is sent to the library with a high-

10 throughput screening system.

1 44. A computer readable medium as recited in claim 43, wherein the predictive model
2 further performs a what if analysis.

1 45. A computer readable medium as recited in claim 43, wherein the requests and
2 information from one of the manufacturers or customers is supplied via the Internet.

1 46. A computer readable medium as recited in claim 43, wherein the high-throughput
2 screening system sends data via the Internet.

1 47. A computer readable medium as recited in claim 43, wherein information and data
2 received from one of research laboratories or universities is supplied, via the Internet, to the library.

1 48. A computer readable medium as recited in claim 43, wherein information and data
2 received from the Internet regarding the latest developments in the field of one of the manufacturers
3 or customers is supplied to the library.

1 49. A computer-implemented system for measuring and improving manufacturing
2 processes and maximizing product research and development speed and efficiency, the system
3 comprising:

4 a memory configured to store instructions; and

5 a processor configured to execute instructions for:

6 a predictive model that predicts an output from data input,

7 an optimizer that optimizes input variables based upon desired output

8 variables,
9 a library that stores data and information, and
10 an artificial intelligence that receives requests and information from one of
11 manufacturers or customers, and directs the requests and information to the
12 predictive model if an output prediction is requested by one of the manufacturers or
13 customers, to the optimizer if an optimized input based on a desired output is
14 requested by one of the manufacturers or customers, or to the library if the requests
15 from one of the manufacturers or customers cannot be answered by the predictive
16 model or the optimizer, wherein the predictive model, the optimizer, and the library
17 interconnect with the artificial intelligence.

1 50. A computer-implemented system for measuring and improving manufacturing
2 processes and maximizing product research and development speed and efficiency, the system
3 comprising:
4 a memory configured to store instructions; and
5 a processor configured to execute instructions for:
6 a predictive model that predicts an output from input data supplied by one of
7 manufacturers or customers,
8 an optimizer that optimizes input variables based upon desired output
9 variables requested by one of the manufacturers or customers, and
10 a library that stores data and information from one of the manufacturers or
11 customers.

1 51. A computer-implemented method for measuring and improving manufacturing
2 processes and maximizing product research and development speed and efficiency, comprising:
3 providing a predictive model that predicts an output from data input;
4 providing an optimizer that optimizes input variables based upon desired output
5 variables;
6 providing a library that stores data and information; and
7 providing an artificial intelligence that receives requests and information from one of
8 manufacturers or customers, and directs the requests and information to the predictive model if an
9 output prediction is requested by one of the manufacturers or customers, to the optimizer if an
10 optimized input based on a desired output is requested by one of the manufacturers or customers, or
11 to the library if the requests from one of the manufacturers or customers cannot be answered by the
12 predictive model or the optimizer, wherein the predictive model, the optimizer, and the library
13 interconnect with the artificial intelligence.

1 52. A computer-implemented method for measuring and improving manufacturing
2 processes and maximizing product research and development speed and efficiency, comprising:
3 providing a predictive model that predicts an output from input data supplied by one
4 of manufacturers or customers;
5 providing an optimizer that optimizes input variables based upon desired output
6 variables requested by one of the manufacturers or customers; and
7 providing a library that stores data and information from one of the manufacturers or
8 customers.

1 53. A method for measuring and improving manufacturing processes and maximizing
2 product research and development speed and efficiency, comprising:

3 predicting an output from data input with a predictive model;

4 optimizing input variables based upon desired output variables with an optimizer;

5 storing data and information in a library; and

6 receiving requests and information from one of manufacturers or customers with an
7 artificial intelligence, and directing the requests and information to the predictive model if an output
8 prediction is requested by one of the manufacturers or customers, to the optimizer if an optimized
9 input based on a desired output is requested by one of the manufacturers or customers, or to the
10 library if the requests from one of the manufacturers or customers cannot be answered by the
11 predictive model or the optimizer.

1 54. A method for measuring and improving manufacturing processes and maximizing
2 product research and development speed and efficiency, comprising:

3 predicting an output from input data supplied by one of manufacturers or customers
4 with a predictive model;

5 optimizing input variables based upon desired output variables requested by one of
6 the manufacturers or customers with an optimizer; and

7 storing data and information from one of the manufacturers or customers in a library.

1 55. A computer readable medium that stores instructions executable by at least one
2 processor to perform a method for measuring and improving manufacturing processes and
3 maximizing product research and development speed and efficiency, comprising instructions for:

4 predicting an output from data input with a predictive model;
5 optimizing input variables based upon desired output variables with an optimizer;
6 storing data and information in a library; and
7 receiving requests and information from one of manufacturers or customers with an
8 artificial intelligence, and directing the requests and information to the predictive model if an output
9 prediction is requested by one of the manufacturers or customers, to the optimizer if an optimized
10 input based on a desired output is requested by one of the manufacturers or customers, or to the
11 library if the requests from one of the manufacturers or customers cannot be answered by the
12 predictive model or the optimizer.

1 56. A computer readable medium that stores instructions executable by at least one
2 processor to perform a method for measuring and improving manufacturing processes and
3 maximizing product research and development speed and efficiency, comprising instructions for:
4 predicting an output from input data supplied by one of manufacturers or customers
5 with a predictive model;
6 optimizing input variables based upon desired output variables requested by one of
7 the manufacturers or customers with an optimizer; and
8 storing data and information from one of the manufacturers or customers in a library.